TECHNICAL REVIEW DOCUMENT
for
MODIFICATION TO OPERATING PERMIT 95OPBA029

Colorado Interstate Gas Company – Flank Compressor Station
Baca County
Source ID 0090001

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Revised April 2007

I. Purpose:

This document establishes the decisions made regarding the requested modification to the Operating Permit for Colorado Interstate Gas Company's Flank Compressor Station. This document provides information describing the type of modification and the changes made to the permit as requested by the source and the changes made due to the Division-s analysis. This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the information provided in the request for modification submitted to the Division on March 22, 2007, additional information submitted on April 25, 2007, e-mail correspondence and telephone conversations with the source. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Permit Modification Request/Modification Type

The Operating Permit for the Flank Compressor Station was renewed on January 1, 2006. The source requested that the permit be revised since the hours of operation limitations for engines E002 through E004 expired on December 1, 2006. The source has requested that the emission limits and natural gas consumption limits be revised to allow each engine to operate for 8760 hours per year. In addition, the source indicated that fugitive VOC emissions were below the APEN de minimis level and should be considered an insignificant activity. The source submitted a request to cancel the construction permit for fugitive VOCs from equipment leaks on April 25, 2007. Finally, the source requested that the language for determining the Btu content of the natural gas used as fuel be revised.

Requested emissions of NO_X, CO and VOC for the three engines are 149.4, 149.4 and 8.5 tons/yr, respectively, which is an increase of 33.4, 33.4 and 4 tons/yr from previously permitted (potential) emissions.

Colorado Regulation No. 3, Part C, Section X.A identifies those modifications that can be processed under the minor permit modification procedures. Specifically, minor permit modifications "are not otherwise required by the Division to be processed as a significant modification" (Colorado Regulation No. 3, Part C, Section X.A.6). The Division requires that "any change that causes a significant increase in emissions" be processed as a significant modification (Colorado Regulation No. 3, Part C, Section I.B.36.h.(i)). The increase in permitted (potential) emissions associated with this modification is 33.4 tons/yr of NO_X, 33.4 tons/yr of CO and 4 tons/yr of VOC, which are all below the PSD significance levels of 40 tons/yr (NO_X), 100 tons/yr (CO) and 40 tons/yr (VOC). Therefore, the Division agrees that this modification qualifies as a minor modification.

The potential to emit (PTE) for this facility after the modification is shown in the below table:

Emission Unit	Potential to Emit (tons/yr)			
	NO_X	CO	VOC	HAPS
E001	15.9	29.5	6.4	See Table 2 on Page 8
E002 – E004	149.4	149.4	8.5	
E005	21.7	56.5	13	
East Dehy (S006)			10.2	
West Dehy (S007)			10.2	
Central Dehy (S008)			37.9	
Field Dehy (S009)			38	
Fugitive VOCs			0.20	
Total	187	235.4	124.4	55.95

The criteria pollutant PTE for the engines and dehydrators is based on permitted and/or requested emissions. The PTE for fugitive VOCs is based on the information provided in the modification request submitted on March 22, 2007 (the 2007 component count, emission factors from EPA-453/R-95-017, "EPA's Protocol for Equipment Leak Emission Estimates", Table 2.4, November 1995), 8760 hrs/yr of operation and the March 2006 gas analysis).

The breakdown of HAP emissions by emission unit and individual HAP is provided on Table 2 (page 8) of this document. As indicated in the table footnotes, the HAP PTE was determined as follows: for the glycol dehydrators it is based on the GLYCalc run submitted to set permitted emissions; for fugitive VOC emissions it is based on the information provided in the modification request submitted on March 22, 2007 (the 2007 component count, emission factors from EPA-453/R-95-017, "EPA's Protocol for Equipment Leak Emission Estimates", Table 2.4, November 1995, 8760 hrs/yr of

operation and the March 2006 gas analysis); and for the engines it is based on design rate, permitted annual hours of operation (or 8760 hrs/yr) and the most conservative emission factor from AP-42 or HAPCalc 2.0.

Note that the HAP breakdown shown on Table 2 (page 8), is potential HAPS based on traditional PTE methods (i.e. permit limits or design rate multiplied by 8760 hrs/yr). The Natural Gas Transmission and Storage (NGTS) Facilities and Oil and Natural Gas Production (ONGP) Facilities MACT (40 CFR Part 63 Subparts HHH and HH), allow for emissions from glycol dehydrators to be based on the maximum natural gas throughput rate, rather than the design rate. This analysis is shown on Table 1 (page 7). It should be noted that although the source calculated the maximum natural gas throughput rate (and subsequent hours of operation) as provided for in 40 CFR Part 63 Subpart HHH § 63.1270(a) for dehydrators S006, S007 and S008, the source used permitted hours of operation in the actual MACT analysis. Although permitted hours of operation were used, the HAP analysis was based on an actual gas analysis conducted at the time the MACT analysis was conducted. The benzene, toluene, ethyl benzene and xylene (BTEX) composition used in the MACT analysis was lower than the BTEX composition used to set the VOC emission limits in the permit, therefore, HAP emissions predicted by the MACT analysis (table on page 7) are lower for these units than the HAP emissions predicted by the GLYCalc runs used to set the permit limits (table on page 8). Note that the NGTS MACT specifies that the source use maximum values for other parameters over the same period for which the maximum throughput is determined and that those parameters shall be based on an annual average or the highest single value (§ 63.1270(a)(4)). As indicated in the table on page 7, the increase in hours of operation for engines E002 through E004 do not make the facility a major source for HAPS under the NGTS and ONGP MACT provisions. Therefore, this modification does not result in any changes in MACT applicability as discussed in the technical review document for the renewal permit.

III. Modeling

Although this modification results in an increase in permitted emissions for engines E002 through E004, the Division conducted modeling for this facility in 1996. The modeling analysis included all significant NO_X and CO emission units at this facility (essentially all the engines). Note that although a cumulative analysis was triggered in the 1996 modeling analysis, there were (and still are) no other sources within 5 km of this facility. Therefore, the analysis only included this facility. The results indicated that the facility would not cause of contribute to a violation of the NAAQS/CAAQS. Total emissions for engines E002 through E004 that were used in the 1996 analysis was 380.7 tons/yr of NO_X and 327.3 tons/yr of CO, which are well above the requested emissions for these engines in this modification.

IV. Discussion of Modifications Made

Source Requested Modifications

The Division addressed the source=s requested modifications as follows:

Section II, Conditions 2.1, 2.2 and 2.4

The emission and fuel consumption limits were increased as requested (Conditions 2.1 and 2.2 and CAM plan in Appendix G). In addition, the Division removed the hours of operation limits for these engines (Condition 2.4) and removed the discussion in Condition 2.1.4 regarding ratcheting up emissions when conducting portable monitoring.

Section II, Conditions 1.3, 2.3 and 3.3

The language for determining the Btu content of the natural gas was revised as requested.

Section II.7

Removed the permit conditions for fugitive VOC emissions and included them in the insignificant activity list in Appendix A of the permit. In addition, fugitive VOC emissions were removed from the table in Section I, Condition 7.1 and the tables in Appendices B and C.

Other Modifications

In addition to the requested modifications made by the source, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Flank Compressor Station Operating Permit with the source's requested modifications. These changes are as follows:

Section I – General Activities and Summary

- The construction permit number for fugitive VOC emissions was removed from the list in Condition 1.3.

- Revised the language in Condition 1.4 to indicate that only the provisions in the last paragraph of Section IV, Condition 3.g are state-only enforceable.

- Added Section IV, Condition 3.d as a state-only condition to Condition 1.4. Section IV, Condition 3.d (affirmative defense provisions for excess emissions during malfunctions) is state-only until approved by EPA in the SIP.

- Revised the citations in Condition 3 to reflect recent revisions to Colorado Regulation No. 3.

- Removed Condition 5 from the permit. Although the source calculated the

maximum natural gas throughput rate (and subsequent hours of operation), as provided for in the NGTS MACT in § 63.1270(a)(1), their analysis that indicated they were an area source for the NGTS MACT was based on permitted hours of operation, not the calculated hours of operation. Therefore, since the determination was based on a permitted throughput, rather than the actual throughput, it is not necessary to require that the source keep records of the maximum natural gas throughput rate. Although the source used the permitted hours of operation, they based emissions on an actual gas analysis (January 2000 - benzene at 10 ppm, toluene at 10 ppm, ethyl benzene and xylene not detected); therefore, the resulting HAP emissions from the MACT analysis are lower than the HAP emissions predicted by the GLYCalc runs used to set the VOC emission limits in the permit. Note that the NGTS MACT specifies that the source use maximum values for other parameters over the same period for which the maximum throughput is determined and that those parameters shall be based on an annual average or the highest single value (§ 63.1270(a)(4)).

- Corrected the AIRS ids for engines E002 through E004 in the Table in Condition 7.1. Since they are grouped on one APEN, the AIRS point is 001 for all units.

Sections II.1 thru 3 – Engines

- Based on EPA's response to a petition on another Title V operating permit, minor language changes were made to various permit conditions (both in the table and the text) to clarify that only natural gas is used as fuel in these engines.

Section II.4 thru 6 – Dehydrators

- Added the following phrase "beginning with the month in which the gas sample was taken which indicates the exceedance and ending in the month in which a gas sample is taken that indicates no exceedance" in parentheses to Conditions 4.1.4, 5.1.4 and 6.1.4 in order to clarify how frequently GLYCalc runs are required in the event that a GLYCalc run is triggered by the exceedance of a BTEX concentration.

- Corrected the table in Condition 6.1 to indicate that the frequency of the BTEX analysis is semi-annually, rather than quarterly.

Section II.9 – Compliance Assurance Monitoring (CAM)

- Added a note to Condition 9.1.1.1.a indicating that value of the pressure drops recorded during the performance test.

Section IV – General Conditions

- Removed the statement in Condition 3.g (affirmative defense provisions) addressing EPA approval and state-only applicability. The EPA has approved the affirmative defense provisions, with one exception and the exception, which is state-only enforceable is identified in Section I, Condition 1.4.

- Revisions were made to the Common Provisions Regulation (general condition 3), effective December 15, 2006 (effective March 4, 2007). The appropriate revisions were made to the language in the permit. The December 15, 2006 revisions replaced the upset provisions with the affirmative defense provisions for excess emissions during malfunctions.

- Replaced the reference to “upset” in Condition 5 (emergency provisions) and 21 (prompt deviation reporting) with “malfunction”.

- General Condition No. 20 (prompt deviation reporting) was revised to include the definition of prompt in 40 CFR Part 71.

- Replaced the phrase “enhanced monitoring” with “compliance assurance monitoring” in General Condition No. 21.d (recordkeeping and reporting).

Appendices

- Replaced Appendices B and C with the latest versions.

- Changed the mailing address for EPA in Appendix D.

- Included the pressure drops recorded by the performance test in the CAM plan in Appendix G.

Table 1: HAP Emissions as Calculated in Accordance with NGTS MACT Method

HAPS per CIG MACT analysis for S006, S007 and S008, with APCD corrections, higher engine hours

Unit	HAP Emissions (tons/yr) acetaldehyde	acrolein	Benzene	toluene	ethyl benzene	xylene	formaldehyde	n-hexane	methanol	**total**
E001	0.22	0.16	0.04	0.21		0.01	1.83	0.03	0.07	2.57
E002 - E004	0.43	0.40	0.94	0.30		0.07	4.23		0.47	6.84
E005	0.40	0.29	0.08	0.39		0.02	3.33	0.08	0.12	4.71
East Dehy (S006)			0.25	0.46				0.10		0.81
West Dehy (S007)			0.25	0.45				0.10		0.80
Central Dehy (S008)			3.75	5.14				1.54		10.43
Field Dehy (S009)			2.90	7.80	2.10	2.80		1.10		16.70
Fugitive VOCs			2.90E-04	6.84E-04	0.00E+01	3.94E-04		4.48E-03		5.85E-03
Total	1.05	0.85	8.21	14.75	2.10	2.90	9.39	2.95	0.66	42.87
S001/S009	0.22	0.16	2.94	8.01	2.10	2.81	1.83	1.13	0.07	19.27
Others	0.83	0.69	5.27	6.74	0.00	0.09	7.56	1.82	0.59	23.60

S001 and S009 are subject to Subpart HH, therefore, they are aggregated separately for purposes of determining MACT applicability.
The other emission units are potentially subject to Subpart HHH.
Engine emissions are based on most conservative emission factor (from AP-42 and HAPCalc 2.0, for 4-cycle rich burn engines and/or 4-cycle lean/clean burn) for each pollutant. Note that except for S001, these are basically the same emission factors used by CIG
APCD corrections on dehy runs for S006, S007, and S008 are based on lower inlet gas temp per recorded values (average) and non-electric pumps for S006 and S007
Fugitive VOC emissions are based on the information provided in the modification request submitted on March 22, 2007 (the 2007 component count, emission factors from EPA-453/R-95-017, “EPA’s Protocol for Equipment Leak Emission Estimates”, Table 2.4, November 1995), 8760 hrs/yr of operation and the March 2006 gas analysis).

Table 2: Potential to Emit of HAPS

HAPS per Division Analysis

Unit	HAP Emissions (tons/yr) acetaldehyde	acrolein	benzene	toluene	ethyl benzene	xylene	formaldehyde	n-hexane	methanol	**total**
E001	0.22	0.16	0.04	0.21		0.01	1.83	0.03	0.07	2.57
E002 - E004	0.43	0.40	0.94	0.30		0.07	4.23		0.47	6.84
E005	0.40	0.29	0.08	0.39		0.02	3.33	0.08	0.12	4.71
East Dehy (S006)			0.93	0.86	1.40	2.00		1.50		6.69
West Dehy (S007)			0.93	0.86	1.40	2.00		1.50		6.69
Central Dehy (S008)			6.03	1.95	1.40	1.30		1.06		11.74
Field Dehy (S009)			2.90	7.80	2.10	2.80		1.10		16.70
Fugitive VOCs			2.90E-04	6.84E-04	0.00E+01	3.94E-04		4.48E-03		5.85E-03
Total	1.05	0.85	11.85	12.37	6.30	8.20	9.39	5.27	0.66	55.95
S001/S009	0.22	0.16	2.94	8.01	2.10	2.81	1.83	1.13	0.07	19.27
Others	0.83	0.69	8.91	4.36	4.20	5.39	7.56	4.14	0.59	36.68

S001 and S009 are subject to Subpart HH, therefore, they are aggregated separately for purposes of determining MACT applicability.
The other emission units are potentially subject to Subpart HHH.
Engine emissions are based on most conservative emission factor (from AP-42 and HAPCalc 2.0, for 4-cycle rich burn engines and/or 4-cycle lean/clean burn) for each pollutant.
Dehy emissions from GLYCalc runs used to set permit limits.
Fugitive VOC emissions are based on the information provided in the modification request submitted on March 22, 2007 (the 2007 component count, emission factors from EPA-453/R-95-017, “EPA’s Protocol for Equipment Leak Emission Estimates”, Table 2.4, November 1995), 8760 hrs/yr of operation and the March 2006 gas analysis).